

Early Indo-Iranic loans in Uralic: Sounds and strata

Contacts

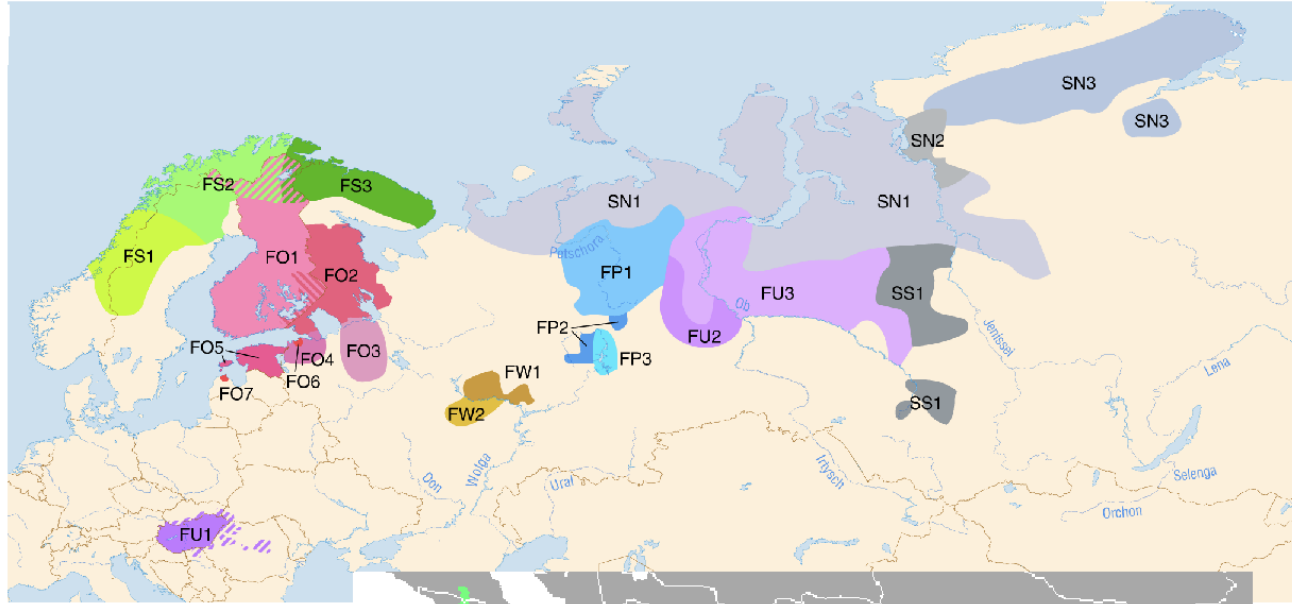
Archaeology, genetics, languages

*Joining forces to shed light on early contacts (4000 BC – 1000 AD)
between Indo-European and Uralic speakers*

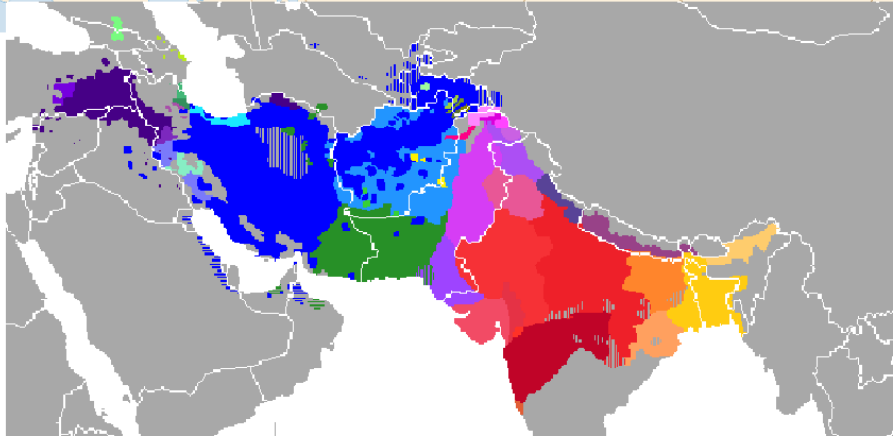
Suomenlinna / Sveaborg 9. 5. 2019

Plan of the talk

1. Introduction
2. Sounds: reconstruction of protolanguage phonology
 1. Indo-Iranic
 2. Uralic
3. Loanwords and sound substitution
 1. Substitution problems
 2. Loanwords
4. Conclusions



Modern distribution of
Indo-Iranic and Uralic:
no contacts









Introduction

Scenarios for contact between Indo-Iranic and Uralic

Historical evidence for Iranian on the steppes south of Uralic:

Scythian/Saka, later Sarmatic-Alanic etc.

Majority view: prehistoric development of Indo-Iranic in western-central steppe, out of PIE (at least) Core IE steppe „homeland“

Cf. Kuz'mina 2007; Parpola 2012

Southern Ir. homeland (S of Caspian) discussed but minority view

Dating of Proto-Indo-Iranic (PIIr.): no later than 2000 BCE

Proto-Iranic: rather soon after that

Introduction: Indo-Iranic

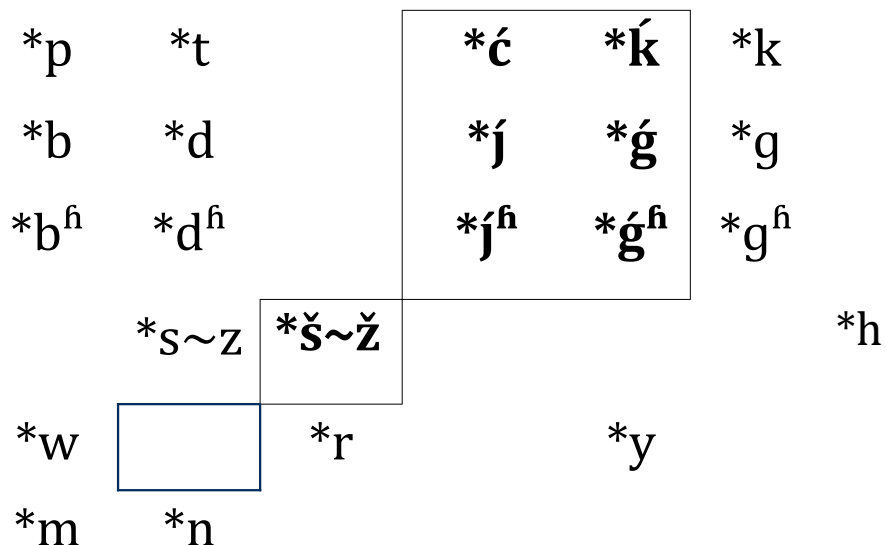
First attested in 15th century BCE in the Hurrian state of Mittani and its neighbourhood by divine, throne and personal names as well as hippological terms; linguistically and culturally rather Indo-Aryan than Iranian; slightly more archaic language than Old IA (diphthongs and voiced sibilants preserved); probably relics of earlier traditions, i.e. in fact from older times

Possibly contemporary to the most ancient texts of Indo-Aryan and Iranian tradition, i.e. Old Indo-Aryan (Vedic) and Old Avestan texts, datable only by relative chronology to before 1200-1000 BCE (cf. Hintze 2015); later Vedic and Younger Avestan roughly 1000-500

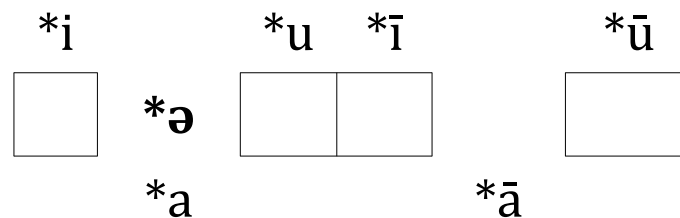
Old Persian inscriptions since 6th century BCE

Proto-Indo-Iranic sound system

Consonants



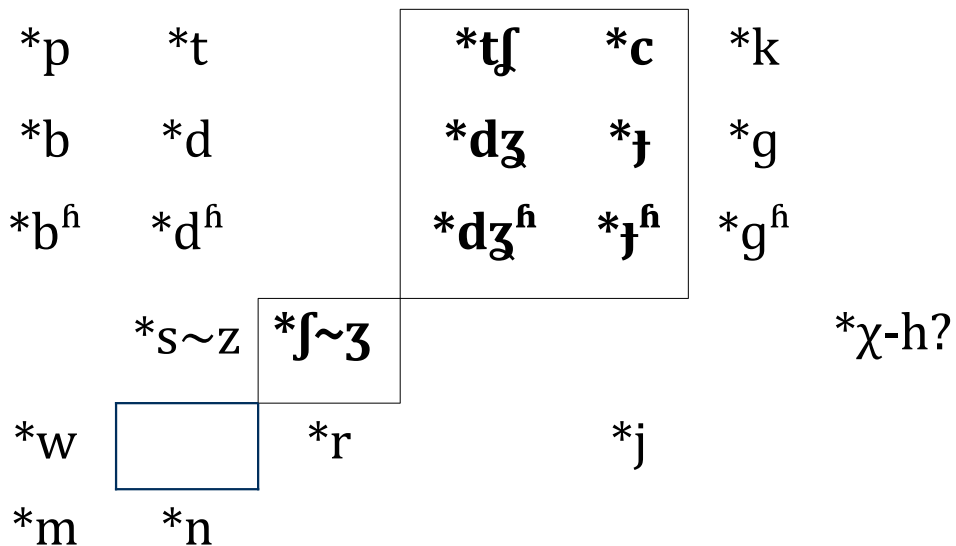
Vowels



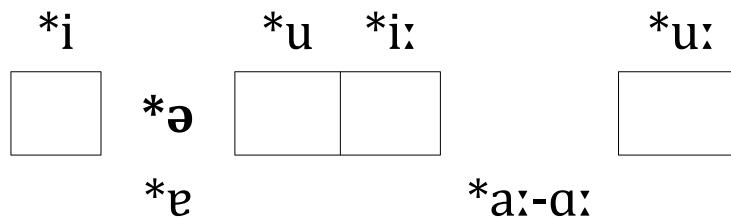
Diphthongs low + high
subphonemic

Proto-Indo-Iranic sound system

Consonants



Vowels



Proto-Indo-Aryan sound system

Consonants

*p	*t	*tʃ	*k
*b	*d	*dʒ	*g
*b ^h	*d ^h	*dʒ ^h ?	*g ^h
*p ^h	*t ^h	*tʃ ^h ?	*k ^h
	*s ~ z	*ʃ ~ ʒ	
		*ç	
		*ʒ ^h	
*w		*r	*j
*m	*n		

Vowels

*i	*u	*iː	*uː
	*a		*aː

Old Indo-Aryan (Sanskrit) sound system

Consonants

p	t	ṭ	c	k
b	d	ḍ	j	g
bh	dh	ḍh		gh
ph	th	ṭ ^h	ch	kh
	s	ṣ	ś	
w	l	r	y	
m	n	ṇ		

h

Vowels

i	u	ī	ū
		e	ō
a		ā	
	ai		au

Old Indo-Aryan (Sanskrit) sound system

Consonants

p	t	ṭ	tṣ	k
b	d	ḍ	dṣ	g
b ^h	d ^h	ḍ ^h		g ^h
p ^h	t ^h	ṭ ^h	tṣ ^h	k ^h
	s	ṣ	ṣ	
				ḥ
w	l	r	j	
m	n	ṇ		

Vowels

i	u	i:	u:
		e:	o:
æ-e-o		a:-a:	
		ai	au

Proto-Iranic sound system

Consonants

*p~f *t~θ *c *č *ć *k~x
*b *d *j *ǰ *ǵ *g
*s~z *š~ž
*w *r *j
*m *n

Vowels

*i *u *ī *ū
 *ə?
*h? *a *ā

? probably still allophonic /C_rC

Proto-Iranic sound system

Consonants

*p~f *t~θ *ts *tʃ *c *k~x
*b *d *dz *dʒ *ɟ *g
*s~z *ʃ~ʒ
*w *r *j
*m *n

Vowels

*i *u *iː *uː
 *ə?
*h? *a *aː

? probably still allophonic /C_rC

Common (Old) Iranian sound system

Consonants


p	t			c/č	k	
b~β	d~ď			j/ĵ	g~ȝ	
f	θ	s	š	(ś)	x	h
		z	ž	(ź)		
w		r		j		
m	n					

Vowels

i	u	ī	ū
	*ə?	(ē)	(ō)
	a		ā

() = only later/dialectal

Consonants

p t tc k
b~**β** d~**ð**
f **θ** s ∫ (**c**) **x** **h**
z **3** (**z**)
w  r j
m n

Vowels

i		u	i:		u:
<input type="text"/>	*ə?	<input type="text"/>	(e:)	<input type="text"/>	(o:)
	a			ɑ:	

() = only later/dialectal

Iranic: Internal classification

Old Iranian varieties: Phonological features

Sanskrit	ś	j/h	śv	jv/hv	tw	tr	śr	sr	s	cy	p
*PIIr.	ć	j	ćw	jw	tw	tr	ćr	sr	s	ky	p
*PIr.	ts	dz	tsw	dzw	θw	θr	tsr	sr	s	ćj	p
EN (Saka)	s	z	ś	ź	θw	θr	sr	hr	h	cy	p
WN (Scythian)	s	z	sp	zb	θβ	θr	sr	hr	h	cy	f
Avestan	s	z	sp	zb	θβ	θr	sr	θr/hr	h	śy	p
Central (W/E)	s	z	sp	zb	θβ	θr	sr	hr	h	śy	p
SW (Persian)	θ	d/ð	s	z	θw	ts?	ts?	hr	h	šy	p

Sound changes in Old Iranian: *ts, *tsw > θ, s / *tsw > ś

Alanic	<i>-Ossetic</i>	(Scythian)	Sogdian	Yaynobi	Yazyulami	Tocharian	Tumšuq
	Caspian	Xwarezmian	Avestan	<i>Tajiki</i>	Šuyni	Sariqoli	Khotan
Zazaki		Parthian	Bactrian	<i>Dari</i>	Iškašimi	Waxi	Burušaski
	Kurdish	Central	Pashto		Munji	Yidya	Nuristani
Gurani					Parači	Indo-Aryan	
Tat	Persian	Baloči		Wanetsi	Ormuri		
		S-Baškardi					

Indo-Iranic consonants

Arguments for PIIr. *ć [tʃ/tʃ̥] instead of *ś

- Nuristani *ts* = IA ś (vs. *s* = *s*)

affricate + palatal = *ć

+ Arguments for Proto-Iranic affricates **ts*, *dz*

- Optimal source of *s*, *z* = Persian *θ*, *d/ð*
- Post-PIr. dissimilation in Av. *zasta-* = *dasta-* ‘hand’ elsewhere
< **dzasta-*
- Tocharian loanwords with *ts* = Common Iranian *s/z* < PIIr. *ć
tsain(wa) ‘arrow’ ← **dzainu-*, Av. *zaēnu-*, *zaēna-* ‘weapon’
etse- ‘mule’ ← **atswa-*, Av. *aspa-* ‘horse’ (Peyrot 201)

Indo-Iranic consonants

Proto-Iranic **ts* or even still **ć*?

Tumshuqese *ś*, Khotanese *śś*, Wakhi *š* < **ćw* vs. *s* < **ć*

Persian *s* vs. *θ*, elsewhere *s* vs. *sp*

Eastern Saka **ś* : **s* < **św* : **ś* (or **ć* : **ts*) < **ćw* : **ć*?

Not necessarily: secondary development of **sw* possible

Cf. Armenian *š* < **ćw* vs. *s* < **ć*

Cornish *dzw* > *dʒ*

Parallel (but fronted) Albanian = Persian *s* < **tsw* < **ćw* vs. *θ* < **ts* < **ć*

Rounding + retraction > postalveolar

> palatoalveolar by contrast to old **š* > retroflex *ʂ*

Indo-Iranic consonants

Secondary palatals $*\acute{k}$, $*\acute{g}$, $*\acute{g}^h$ in alternation with $*k$, $*g$, $*g^h$

Generally [tʃ~tʃʰ] etc. (later > [tʃ, ts] etc.), still clearly palatal(ized)

But: less advanced than primary, so probably still real palatals $*\acute{k}$, \acute{g} , \acute{g}^h [c, ɟ, ɟʰ]

Still in Old Persian (Lipp 2009)?

Sibilants: $*s$ + $*š$ (partly alternating) with voiced allophones

$*š/\acute{z}$ already depalatalizing:

- “Retroflex” (non-palatalized) in all of IA and most of Eastern Iranian
- Avestan \acute{s} less palatal than c, j, y, \acute{s} (< $*\acute{k}, \acute{g}, y, \acute{k}y$); already near to OIA \acute{s}
- less palatal “middle” quality in Western Iranian and probably Sogdian and Alanic (merger with $*sr > *š$ and $*ś < *ćy$)

Indo-Iranic consonants

“Laryngeals”

(P)IE consonants mostly lost in attested languages, normally also in Indo-Iranic

Partly preserved in Anatolian: Hittite, Luwian *ḫ* [χ], Lycian *χ* [k], Carian *k* [k]

But traces of preserved lost consonant **h* even in Indic (Kümmel 2016; 2018)

1. Devoicing in Indic (vs. aspiration in Indic)

YAv. *mas-* < **mac-* < **maj-h-* vs. *mazā-* < **maj-ah-* ‘big’, Skt. *mah(ā)-*, Greek *méga*

daθ- < **dath-* < **dad-h-* vs. *daδā-* = /*dadā-*/ < **dad-ah-* ‘to put, give, create’

nāf- < **nāph-* < **nāb-h-* vs. *nabā-* < **nab-ah-* ‘navel’

isu- ‘cold’ < **icu-* < **ij-h-u-* vs. **yajā-* ‘glacier’ in Waxi *yaz*

**θaiwar-* ‘husband’s brother’ < **thaiwar-* < **dhaiwar-* < **dahiwar-*; Skt. *devār-*

**θau-/θū-* ‘to burn’ < **thau-* < **dhau-* < **dahu-*, Skt. *dū-*

Indo-Iranic consonants

“Laryngeals”

2. Sporadic preservation in peripheral SW Iranian (Persian dialects)

M/NPersian	<i>xāyag</i>	<i>xirs</i>	<i>xišt</i>	<i>xišt</i>	<i>xēšm</i>	<i>xīr</i>	<i>xāk</i>	<i>h/xēš</i>	<i>hanzūg</i>	<i>hēsm</i>
OPersian			<i>əršti-</i>	<i>išti-</i>						
Parthian				<i>hištīg</i>	<i>ēšmag</i>	<i>īr</i>			<i>anjūg</i>	<i>ēzm</i>
Avestan	<i>aēm</i>	<i>arša-</i>	<i>aršti-</i>	<i>ištiia-</i>	<i>aēšma-</i>			<i>aēša-</i>	<i>qzah-</i>	<i>aēsma-</i>
Skt.		<i>ṛkṣa-</i>	<i>ṛṣṭī-</i>	<i>īṣṭakā-</i>			<i>āsa-</i>	<i>īṣā-</i>	<i>aṛṇhu-</i>	<i>édhas-</i>
*PIIr.	<i>hāwya-</i>	<i>hr̥tša-</i>	<i>hr̥stí-</i>	<i>hišti-</i>	<i>hayš-</i>	<i>hrya-</i>	<i>hása-</i>	<i>hayš-</i>	<i>hanj^hu-</i>	<i>haydz^h-</i>
*PIE	<i>χōwjo-</i>	<i>χr̥tko-</i>	<i>χrsti-</i>	?	<i>hajsχ-</i>	<i>χrjo-</i>	<i>χahs-</i>	<i>χajs-</i>	<i>χamǵ^h-</i>	<i>χajd^h-</i>

⇒ Proto-Iranic and Proto-Indo-Iranic still had some kind of **h/x*

potential substitution by Uralic **x/k/š*

Indo-Iranic consonants: changes from IE

Important changes: “L-rhotacism”, RUKI, satemization

1) L-rhotacism: PIE $*l = *r > \text{PIIr. } *r$ (at least in most dialects)

only IIr., precedes:

2) RUKI: Phonologized allophony $s \sim \check{s}$

$s > \check{s}$ after non-anterior segments ($r, \check{u}, w, k, g, \check{l}, j$)

also Balto-Slavic, partly Armenian (similar process in Luwian)

3) Satemization: fronting and assibilation of PIE “palatals”,
delabialization of “labiovelars”

$*\acute{k}, *\acute{g} > \text{PIIr. } *\acute{c}, *\acute{j}$ etc. vs. $*k^w, g^w > \text{PIIr. } *k, *g$

(followed by $*\acute{c} > *\check{s} \Rightarrow$ phonologization of RUKI-allophony)

also Balto-Slavic, Armenian, Albanian (similar processes in Luwic Anatolian)

Indo-Iranic vowels: changes from IE

Brugmann's Law $*o > *ō (> *ā)$ in open internal syllables (similar in Anatolian)

Low realisation of PIE $*e$ [ɛ], a , o [ɔ] > pPIIr. $*æ$, a , a/v

Law of palatalization:

$*k, g, g^h > [c, ɟ, ɟ] / _V[+front] = \text{pPIIr. } *æ, \tilde{æ}, i, \tilde{i}, y$

Followed by merger of low vowels

Front $*ǣ = \text{back } *ǣ [a/v] > \text{central } *ǣ [a-a]$

⇒ phonologization of „secondary palatals“ $*k̑, *g̑, *g̑^h$

pPIIr. vowel contrast still reflected by early borrowings?

Syllabic nasals > $*ā(N) > a(N)$, loss of N before obstruents (not $*h$)

Pre-Proto-Indo-Iranic sound system

Consonants

*p	*t	*ć	*k [c~k]
*b	*d	*j	*g [ɟ~g]
*b ^h	*d ^h	*j ^h	*g ^h [ǵ~ǵ]
	*s~z	*š~ž	*x?
*w		*r	*y
*m	*n		*y?

Vowels

*i	*u	*ī	*ū
	*ō		*ō?
*æ	*a	*ā	*ā

Indo-Iranic: relative chronology

L-rhotacism: $*l > *r$

RUKI+Satem: $*s > \check{s}$ after non-anterior; $*\acute{k}$ etc. $> *ć$; $*k^w$ etc. $> *k$

Lowering of mid vowels $*e [\epsilon] > *æ$, $*o [\text{ɔ?}] > *ɒ$

Brugmann's Law $*ɒ > \bar{o}$ (open syllables)

Palatalization: $*k$ etc. $> *k' / _ \check{æ}, \check{i}, j$

Secondary $*ə$, $*\tilde{ə}$ and possibly $*i$

Merger of lower vowels: $*æ + *a + *ɒ > *a$; $*\tilde{ə} > a$

Loss of (some) laryngeals

Proto-Uralic sound system (Sammallahti 1988)

Consonants

*p	*t	*c		*k
	*s		*ś	*x
	*d		*d'	
*w	*l	*r	*j	
*m	*n		*ń	*ŋ

Vowels

*i	*ü	*ï	*u
*e			*o
*ä			*å

Proto-Uralic sound system (Sammallahti 1988)

Consonants

*p	*t	*t̚s̚		*k
	*s		*ʃ	*x?
	*ð		*ðʲ	
*w	*l	*r	*j	
*m	*n		*ɲ	*ŋ

Vowels

*i	*y	*i/ɯ	*u
*e			*o
*æ			*ɒ/ɑ

Proto-Finno-Ugric sound system (Sammallahti 1988)

Consonants

*p	*t	*č		*ć?	*k
	*s	*š		*ś	*x
	*d		*d'		
*w	*l	*r	(*l')	*j	
*m	*n			ń	*ŋ

Vowels

*i	*y	*ï	*u
*e			*o
*æ			*å
*ii		*ïï	*uu
*ee			*oo

Proto-Finno-Ugric sound system (Sammallahti 1988)

Consonants

*p	*t	*t̚ʂ		*t̚ʂʔ	*k
	*s	*ʂ		*ʂ	*xʔ
	*ð		*ðʲ		
*w	*l	*r	(*lʲ)	*j	
*m	*n			*ɲ	*ŋ

Vowels

*i	*y	*i/ɯ	*u
*e			*o
*æ			*ɒ/ɑ
*iː		*iː/ɯː	*uː
*eː			*oː

Proto-Uralic sound system (cf. Zhivlov 2014, modified)

Consonants

*p	*t	*č	*ć	*k
	*s	*š		*x
	*d		*d'	
*w	*l	*r	*j	
*m	*n		*ń	*ŋ

Vowels

*i	*ü		*u
*e		*ɛ	*o
*ä			*a

Proto-Uralic sound system (cf. Zhivlov 2014, modified)

Consonants

*p	*t	*t̚s̚	*t̚ʃ̚	*k
	*s	*ʃ̚		*x/ɣ?
	*ð		*ðʲ	
*w	*l	*r	*j	
*m	*n		*ɲ	*ŋ

Vowels

*i	*y		*u
*e		*ʔ	*o
*æ			*ɒ

Proto-Uralic consonants

Arguments for affricate $*t\check{c} = *ć$ instead of $*ś$

- Saamic $*ć$ ($*č$) and also geminate $*ćć$ in Fennic retention instead of improbable change
- Affricate in Permian and Ugric $*ńć$ (less compelling)
- Relics of $*ć$ in Permian and Ugric
- $*ć > *ś > *s$ (and $*s > *θ$) in Common rather than Proto-Ugric
Mansi split into $š$ and s ; Hungarian (very) sporadic $š$
(cf. borrowing of $*säptä$ '7' before or after this chain shift)
- Proto-Samoyed $*ć$ (Zhivlov 2018b) with later parallel changes to $*ś$, $*s$

Proto-Uralic consonants

cf. palatal and/or occlusive reflexes of PSm “*s”:

Nganasan weak grade $j \sim d'$, $nd' < *s$, $*ns$

basa ~ *bad'a* ‘iron’ < **wäsä*; *bənsə* ~ *bəńd'e?* ‘all’

Nganasan $*e > *e > \text{old } e$, modern i / \acute{n} , s _

ńir, *ńirku* < **ńer*, **ńerkå*

modern *sır*, *sır*, *sıru*; old *ser*; --; *séru* < **ser*, **ser*, **serå*

sjad'a < **sejə*

Tundra Enets $d' = \text{Forest } s < *ns$, $*ms$: **mənsə-*, **ńensəjr-*, **sünsə*, **əmså*

ud'a = *osa* < **əmså* (cf. $d' = s < *r\acute{c} < *rk^j$ in *med'e* = *mese* < **märkä*)

Affricate in Nenets *pc*, *nc* (inconclusive)

Proto-Uralic consonants

Selkup *ś > N/M š, ž; S ss, s < *ns; *küśə, *qaśə- < *kunsə, *kənsə-

*ć > ś, feeding *ś > s, earlier than *ńć > ńś > ś

Mator nž < нџ, нш, nsch > < *ns: кунџимъ; künschum

Mat. š/sʲ/ž/zʲ < ш,сь,зъ,sj,sch > often even in back vowel words = still palatal

Mat. /k/ [kʲ] < къ,гъ,k,g > before old front vowels:

keje, kejbe, ki, künžü < *säjä, *säjtwə, *sijə, *sünsə

*ć > kʲ /k/

cf. Selk. (*j/k >) *ć > k /_V[+front]: kũ, kindi, kintə

⇒ PSm. still *ć (with *ś allophones?) ⇒ PU *ć

Proto-Uralic vowels

“Laryngeal” sequences $*\ddot{a}x$, $*ax$, $*ix$; $*ix$, $*ux$ (Janhunen 1981)

> FU long vowels $*ee$, $*\ddot{i}$, $*oo$, $*ii$, $*uu$

Secondary, mainly due to pre-resonant lengthening in Finnic (Aikio 2012)

= simple $*i$, i , u ; \ddot{a} , \ddot{a}

Unaccented $*i \sim i$ rather = $*\partial$ (Kallio 2012)?

Arguments for third unaccented vowel $*a_2/o$ (Zhivlov 2014)

Distinction of H \acute{a} = X \bar{a} ~ Sm $-\ddot{a}$, Ma $-\partial$ as in $*kala_1$ ‘to fish’

vs. H a = X \bar{u}/\bar{i} ~ Sm $-\partial$, Ma $-\emptyset$ as in $*kala_2$ ‘fish’

Different similar proposal for unaccented $*o$ by Aikio 2015

Not yet supported by front vowel parallels, still somewhat unclear

Proto-Uralic vowels

Other problems with traditional reconstruction

Change $a...ə > o...a$ (Aikio 2015) in Saamic and Mordvin unmotivated

Change $ä...ä > a...ə$ (Kallio 2012; Aikio 2015) in Finnic unmotivated

Saamic $*o > *j > *oa$ vs. $*a > *ā > *ō > *uo$ difficult to model

Hungarian quantity remains largely unclear

Non-parallel development of $*i, *ü, *u / *e, *ē, *o / *ä, a$

E.g. lowering of $*i, *u$ but not $*ü$ in Ug

raising of $*e$ but not of $*o$ in Sa, Mo, Ma, Ms, X, Sm

lowering of $*o$ but not of $*e$ in Ma, P, Ug, Sm

lowering of $*j$ but not of $*e/o$ in Sa, F, Mo ...

Proto-Uralic vowels

Arguments for non-high $*e$ [ɜ/ʌ] vs. high $*i$ [i/ɯ] (cf. Pystynen 2017)

- merger with $*a$ in West Uralic and partially elsewhere
- Proto-Mansi $*ē > ē/ā$ rather than $*ī$
(also $*ē > ī/ē$; $*ō > ō/ū$ rather than $*ī$, $*ū$)
- higher reflexes in H, X, Sm in (potential) raising environments

Arguments for back rounded $*ā$ [ɒ] vs. $*a$ (cf. Pystynen 2017)

- rounded reflexes in Sa, Ma, P, Ms, Sm; partially in F, H
- unrounded reflexes by conditioned changes (often in palatal environments)
- Sa/Mo change $*ā > *o$ easier to understand (but why $*-ə > *-a$?)

Proto-Uralic vowels

Arguments for shifted round/back vowels \ddot{u} , u , $o < *u$, o , $\text{ɔ}/a$

(Pystynen 2017)

- isolated /y/ most often from */u/ cross-linguistically, often with chain shift $o, u > u, y$ (and possibly also $a > o$)
- Lower reflexes of PU * o than of allegedly parallel * e

However:

- * \ddot{u} clearly a front vowel in all branches; * u normally as high as * i
⇒ PU already * \ddot{u} , * u but still * ɔ
maybe additional * $o > \text{Sm } *o = \text{F } *o$?
- * ɔ would not leave much room for rounded back * ɑ
⇒ older * $a : * \text{ɑ}/\text{ɔ} > *a : *o$ only in more Western branches?

Proto-Uralic vowels

Arguments for additional centralized vowels (Häkkinen 2009)

split correspondence of F **e* in Sa **ə* / **ē* and Mo **e* / **i*

split correspondence of F **o* in Sa **o* / **ō* and Mo **o* / **u*

Cases of F *i/ü* vs. back/rounded vowels elsewhere

Quantitative “two layers” reinterpretation by Tálos 1987

- **e, o* before **ä/a* < **ā, ā*
- **ī/i, ū/i* before **ə* < **ē, *ō* by metaphony < **ā, ā*
- **i, ü, u* < **ī, ū, ū*
- **e, o* before **ə* < **i, u*
- **ä, a* < **ä, a*

Proto-Uralic vowel systems: alternatives

Häkkinen 2009

*i *ü *j *u
 *ê *ô
*e *o
*ä *a

Tálos 2015

*i *u
*æ *ɑ
*iː yː iː *uː
*æː *ɑː

Proto-Uralic vowels

Arguments for quantitative reinterpretation (Tálos 1987; 2015)

- More natural vowel changes: “vowel rotation”
= high > short, short > low, low > long, long > high
- Preservation of length in H $\acute{a}, \acute{e} < *o = *\bar{a}, *e = *\bar{ä}$
- Preservation of low $*\bar{a}$ in eastern low reflexes of “ $*o$ ”
- $a...ə > \text{Sa-Mo } *\bar{a}...ə > *\bar{a}...a > *o...a$
- $\ddot{a}...ä > \text{F } *\bar{\ddot{a}}...ə > *\bar{a}-ə > a...ə/\bar{o}...ə$
- Easy explanation of U $*o$ for PIIr. $*\bar{a}$ and maybe also $*\acute{a}$

Difficulties

- Frequent Sa $*ə = \text{F } e$ instead of expected $*\bar{\ddot{a}} > *\bar{i} > \text{S } *i = \text{F } *\bar{i}$
- Non-parallel behaviour of $*\bar{i} (= *e)$ vs. $*\bar{i}, *\bar{ü}, *\bar{u}$

Proto-Uralic sound system, modified 1

Consonants

*p	*t	*t̚s̚	*t̚ʃ̚	*k
	*s	*ʃ̚		*x
	*ð		*ðʲ	
*w	*l	*r	*j	
*m	*n		*ɲ	*ŋ

Vowels

*i	*y		*u
*e		*ʔ	*o?
*æ			*ɒ/ɔ
		*ɑ	

Proto-Uralic sound system, modified 2

Consonants

*p	*t	*č	*ć	*k
	*s	*š		*x
	*ð		*ðʲ	
*w	*l	*r	*j	
*m	*n		*ń	*ŋ

Vowels

*i	*ü		*u
*ɪ?			*ʊ?
*ä		*ē	*ā
*ä			*ǻ

Substitutions in borrowing: consonants

PIIr. = pPIIr. $*\acute{c}, j, j^{\text{h}} \rightarrow \text{PU } *\acute{c}$

not IA $*\acute{s} \rightarrow \text{PU } *\acute{s}$ (but maybe $*\acute{c} \rightarrow *\acute{s}$ in later borrowings)

PIr. $*c [ts], j [dz] \rightarrow \text{U non-palatal } *\check{c} \text{ or } *ks (?) \text{ or (later?) } *s$

Clr. $*s, z \rightarrow \text{U } *s$, later $\rightarrow \text{Ug } *s (= \text{PU } *\hat{c})$

Very late Clr. $z \rightarrow \text{P, H } z$

PIIr. $*\check{s}, \check{z} \rightarrow \text{U (retroflex) } *\check{s}$, never $\rightarrow *\acute{c} (*\hat{s})$

PIIr. $*h [x-h] \rightarrow \text{U } *k$, rarely $*\check{s}?$

later PIIr., PIr. $*h [h] \rightarrow \text{U } \emptyset$

PIIr. $*\acute{k}$ normally $\rightarrow \text{U } *k$, only late $\rightarrow *\acute{c}$

Substitutions in borrowing: vocalism

Vowel (mis)matches

1) Ilr. low central $*a$, $*\bar{a}$ vs. Uralic front $*\ddot{a}$ / back $*\text{a}^\text{o}$
> either substitution possible

2) Ilr. only one (rare) mid central vowel $*\text{ə}$

$*\text{ə} \rightarrow \text{U } *e$ but not $\rightarrow \text{U } *e/o$

But if U $*o$ = lower [ɔ-ɒ]: allophone of PIlr. $*a$ [æ-e-ɔ]?

Would explain $*a/\bar{a} \rightarrow *o$

[No good arguments for non-low/rounded PIlr. $*\bar{a}$]

Substitutions in borrowing: vocalism

Vowel (mis)matches

U $*\bar{a} \leftrightarrow$ PIIr. $*a < \text{pPIIr. } *æ$ does not imply pre-PIIr. borrowing
possibly $\leftrightarrow \text{pPIIr. } *a < \text{PIE } *o$

U $*o [\text{ɔ} - \text{ɒ}]$ maybe also \leftrightarrow PIIr. $*a < \text{pPIIr. } *æ/a$
not necessarily $\leftrightarrow \text{pPIIr. } *ā/\text{PIE } *o$

U $*e \leftrightarrow$ PIIr. $*a$ more problematic
if PU $*\bar{a}$, then $\leftrightarrow \text{pPIIr. } *a < \text{PIE } *o$,
otherwise potential evidence for pPIIr. $*e [\text{ɛ}]$

Substitutions in borrowing: vocalism

Vowel mismatches?

Pre-PIIr. vowel not always clear

**márta*- ‘mortal, (hu)man’ < **mérto*- ⇐ **mṛtó*- ‘dead, mortal’;

type **génhto*- ‘child’ ~ **gṇhtó*- ‘born’

but no evidence for **mérto*- elsewhere

Or rather < **mórto*- ⇐ **mertó*- ⇐ **mer*- ‘death’; cf. Greek *mórtos* (vs. *brotós*), cf. Beekes 2010: 969

type **ǵ^hósto*- ‘arm, hand’ ⇐ **ǵ^hestó*- ⇐ **ǵ^hes*- (cf. Neri ??: 197f.)

Unknown vowels in **makš*-, **warāj^há*-, **árd^ha*-/ *ard^há*- and more

Loanwords: Plr. and Pre-Plr.

Indications of Ilr. origin:

- *L*-rhotacism
- RUKI and satem (but also Balto-Slavic)
= U *š, *ć
- Low vowels *ä/*a* for IE **e/o* (but latter also BS)
- Front vowel for IE back vowel and vice versa
- Simple (non-high) vowel for IE syllabic **N*
- Not found in other branches of IE

Loanwords: earlier than Ilr.

Similarities in basic vocabulary, no indication of Ilr. loans

PU **wetə* ‘water’

PIE **wód-/wed-/ud-*, PIIr. **ud-*

P(F)U **jäṇə* ‘ice’

PIE **jeǵ-i/o-*, PIIr. **yaǵa-*

P(F)U **kätə* ‘hand’

PIE **ǵ^hes-*, PIIr. **ǵ^hásta-*

PU **nimə* ‘name’

PIE **h₁n(ǵ)h₃mn-*, PIIr. **náman-*

P(F)U **näkə* ‘see’

PIE **deǵ-* ‘perceive’, PIIr. **dǎć-*

PU **kV-/mV-* ‘who, what’

PIE **k^wV-/mV-*, PIIr. **ká-/kí-*

PU **kaw-* ‘ear’

PIE **ǵáw-s-*

PU **kaja-* ‘sun, appear’

PIE **ǵáj-r-* ‘morning, day’

(Pre-)PIE loans? Chance resemblance? Cognates from Proto-Indo-Uralic?

Loanwords from Uralic?

Unclear direction, IIr. borrowings from U? Underresearched!

PU **weŋćə* ‘knife’

PIIr. **wǎćī-* ‘axe’

PU **peŋka* ‘mushroom’

PIIr. **b^hangá-* ‘narcotic’

P(F)U **kota* ‘hut’

PIr. **kata-* ‘house’

PU **käd’wä* ‘female animal’

PIr. **gadwā-* ‘bitch’

PIr. **kaθwā-* ‘female donkey’

PFU **katV-* ‘steal, thief’

PIr. **gada-* ‘robber, thief’

PU **kala* ‘fish’

PIr. **kara-* ‘big fish’

Maybe more in extinct Northern Iranian

Loanwords

Uralic vs. Finno-Ugric: Few loanwords include Samoyedic

Research history: Sm less well investigated

LWs with PU distribution: **kaja-* ‘sun, light, appear’ ↔ (p)PIIr. **xayar* ‘day’

**kajšV-* ‘sickness’ ↔ (p)PIIr. **xajšá-* ‘seeking’

**käd’wä* ‘female’ → PIr. **gadwā-* / **kaθwā-* ‘female dog/donkey’

Only Sm: **warkə* ‘bear’ ↔ P(I)Ir. **wřka-* ‘wolf’ (?)

**tajkå* ‘edge, knife, sword’ < **ta/ojka* ↔ P(I)Ir. **tayga-*

**jeə/joə* ↔ P(I)Ir. **yáwa-* ‘barley’ (Janhunen 1983)

**wātə-/wātā-* ‘(let) grow’ < **wa/okša-* ↔ PIIr. **wakš-* (Aikio 2002)

**čoja-* ‘be born’ <? **ča/oja-* ↔ PIIr. **jāya-*

Loanwords from Indo-Aryan branch?

Parpola 2012

**metə-śístä* 'wax' in Komi P *ma-sís* '(wax) candle' \leftrightarrow **mæd^hu-śišta-*
= Skt. *madhu-śiṣṭa-* 'wax' (not Vedic, unusual)

compound of *madhu-* 'honey'

and *śiṣṭa-* 'left (over), rest' from *śiṣ-* 'to leave over'

Inner-Komi compound of **metə* 'honey' > K *ma*

and **cíctä/cíštä* 'wax' > K *śís(t/k-)*, cf. Mo *šta*, Ma **šište*, Ud *śuś(t-)*

< PIr. **cíšta-* 'left over', not necessarily IA

root **cíš-* not preserved in Iranian, but probably PIr.

Loanwords from Indo-Aryan branch?

Parpola 2017

**watsá-* ‘calf’ \rightarrow **waćća* > F *vatsa* ‘stomach’ (?)

Semantics – problematic (at least not compelling)

Sound substitution **ts* \rightarrow **ć(ć)* unsupported (but conceivable)

Presupposition: **ts* cannot be Iranian, thus IA

But PIr. still had **ts*, so Iranian source remains possible

Loanwords: Problematic cases

Ug **mańćV* '(hu)man' > H *magy-ar*, Ms **mǎńć(ē)*, X **māńć*

↔ **mánuš-*, Skt. *mānuṣ-*

IIr. **š* never → U palatal

F *synty-* 'be born' < **sen-tü-* < **senV-*

↔ (pre-P)Ir. **dzen-* < **jæn-* = PIIr. **jan-* < PIE **ǵenh-*

F vowel irregular; no **e* from Iranian

F *herä-* 'awake' < **čerä-/šerä-*

↔ (pre-P)Ir. **jer-* < **ǵær-* = PIIr. **ǵar-* < PIE **hǵer-*

secondary palatals never → U retroflex, no **e* from Iranian

Loanwords: PIIr. and Pre-PIIr.

$*x/h > *k$

pPIIr. **xrtća-* (> PIIr. **hrtša-*) ‘bear’ \rightarrow **kēršə-w* > F?

pPIIr. **xawšās* > PIIr. **hawšās* (?) ‘dawn’ \rightarrow **kawša-* (or < pre-Baltic?) > Sa

?pPIIr. **xayšá-* > PIIr. **hayšá-* ‘seeking’ \rightarrow PU **kajša-* ‘sickness; longing?’

$*x/h > *ṣ$

pPIIr. **puxtá-* (ved. *pūtá-*) \rightarrow **puṣta-* > F *puhdas* ‘pure’

pPIIr. **pun(á)x-* \rightarrow FP *punaṣ-/punṣa-* ‘to clean’ > Mo *ponža-*, F *poh-ta-* ‘to winnow’

$*h > \text{zero}$

pPIIr. **háńća* \rightarrow FU **ońća* ‘share’

pPIIr. **hájá-* \rightarrow FU **aja-* ‘to drive’

Loanwords: Vowel correlations

Front → mid front

pPIIr. **kǣklá-* (> PIIr. **kákrá-*) → **keklä* (**kāklä*) ‘curve’ > Sa

pPIIr. **mǣd^hu* > PIIr. **mád^hu* → FU **metə* (**mātə?*) ‘honey’

pPIIr. **mǣrta-* (?) > PIIr. **márta-* → FP **mertä* (**mārtä*) ‘(hu)man’

pPIIr. **yǣwa-* → U **jewä* (**jāwä*) ‘barley’ > FP

pPIIr. **kǣkrá-* > PIIr. **kákrá-* → **kekrä* (**kākrä*) > Sa ‘round’

pPIIr. **kǣtstra-* > PIIr. **kátstra-* → FP? **kesträ/kečrä* (**kāsträ*) ‘spindle’

pPIIr. **jǣra-* > PIIr. **jára-* > Plr. **dzara-* → Mo **serä* (**sārä*) ‘old’

Front → low front

pPIIr. **pǣcú/áw-* > Plr. **pacú/áw-* → **päčä-* > Ug ‘reindeer calf’

Loanwords: vowel correlations

Front → low front

pPIIr. **sæptǎ* > PIIr. = (p)PIr. **saptá* → (p)Ug **säptä* ‘7’

pPIIr. **ćærdʰa-* > PIIr. **ćárdʰa-* → **ćärtä/ćertä* >? Sa **ćeartə* ‘tribe’

PIIr. **kátstra-* > PIr. **castra-* → **ćäsrä?* > P **ćärs* ‘spindle’

Back/central → mid back

(p)PIIr. *(*H*)*ánca-* ‘share’ → FU **ońca* (**āńca*)

pPIIr. **párcā-* (or Baltic?) ‘pig’ → WU **porcas* (**pārcas*)

pPIIr. **jãHya-* > PIIr. **jāya-* ‘be born’ → **coja-* (**ćāja-?*) > Sm **cojå-*

(why not **ćåjå-?* other examples of PU **oja* in Sm?)

P(I)Ir. **tayga-* → **tajka*/**tojka* > Sm **tajkå* ‘point’

Loanwords: vowel correlations

Back/central → low back

PIIr. Plr. **wáHata-* > Clr. **wāta-* → Ms, X **wāt* ‘wind’

High → high

PIIr. **cíšta-* ‘left over’ → FP **cíštā* ‘wax’

PIIr. **wišá-* ‘poison’ → FP **wiša* ‘poison’

?PIIr. **ćuktá-* > Plr. **tsuxta-* ‘burnt’ → F, Mo **šukta*

Mid (> low) → high

pPIIr. **ǣb^hrá-* ‘rain’ (> PIIr. **ab^hrá-*) → WU **iprä* > Sa

PIIr. **wŕka-* > Plr. **wərka-* ‘wolf’ → **wirkäs* (?) > Mo

→ U **wurka* (?) > Sm **wærkə* ‘bear’

Loanwords: vowel correlations

Mid (> low) \rightarrow mid/high

pPIIr. **ćātá-* (> PIIr. **catá-*) ‘100’ \rightarrow FU **ćeta*

pPIIr. **yā́má-* (> PIIr. **yamá-*) ‘twin’ \rightarrow WU **je/ama* > Sa **juomē-*

pPIIr. = PIIr. **trna-* (> Plr. **tarna-*) ‘grass’ \rightarrow FP **tęrna*

pPIIr. = PIIr. **mrtá-* (> Plr. **marta-*) ‘dead’ \rightarrow FP **męrta-*

PIIr. **wršā* > Plr. **waršā* \rightarrow **węrsa* > F(\rightarrow)Sa **warsa* ‘foal’

(with Alanic *š* > *s*, but that was late and only Yassic-Ossetic)

pPIIr. **xrtća-* (> PIIr. **hrtša-*) ‘bear’ \rightarrow F **kęrša-w?*

?pPIIr. **bā́j^hú-* > PIIr. **baj^hú-* > Plr. **baju-* \rightarrow F **pa/ęksaw* ‘thick’?

Loanwords: vowel correlations

Front \rightarrow mid back

(IE **ēlā-* \rightarrow) pPIIr. **ǣrā-* \rightarrow PIIr. **árā-* ‘awl’ \rightarrow FU **ora* (**āra*)

pPIIr. **pæć(á)w-* \rightarrow PIr. **pacáw-* (**pácaw-?*) ‘animal’ \rightarrow FP **počaw* (**pāčaw*)

pPIIr. **sæna-* \rightarrow PIIr. **sana-ká-* \rightarrow FU **soŋka* ‘old’

pPIIr. **yáewa-* \rightarrow PIIr. **yáwa-* ‘barley’ \rightarrow **jēwə* (?) \rightarrow Sm **jēə/joə*

pPIIr. **wætsá-* \rightarrow P(I)Ir. **watsá-* \rightarrow Clr. **wasa-* ‘calf’ \rightarrow Ug **wəsakV*

pPIIr. **pǣra-* \rightarrow PIIr. **pára-* ‘far; former, ancient’ \rightarrow Sa **pora/parə* ‘old’

pPIIr. **wǣjHna-* \rightarrow PIIr. **wáyna-* ‘look, see’ \rightarrow Sa **wojna-/wajnə-* ‘see’

Front \rightarrow low back

pPIIr. **j^hǣsra-* \rightarrow PIIr. **j^hásra-* \rightarrow FU **ćasra* ‘1000’

Loanwords: vowel correlations

Front → low back

pPIIr. **hwækš-* > PIr. **(h)wakš-* → **wakšV-* (**wokšV-?*) > Sm **wātə-/wātā-* ‘grow’

pPIIr. **pǣra-* > PIr. **pára-* → FP **para* ‘good’

pPIIr. **sǣras-* > PIr. Plr. **sáras-* → Ug **sara* ‘flood’

pPIIr. **wætsá-* > PIr. Plr. **watsá-* > Clr. **wasa-* → WU **wasa* ‘calf’

?PIIr. **mánj^ha-* > Plr. **mandza-* → F, Mo **ma/eksa-* ‘pay’

Back/central → mid front

IE **wólko-* > (p)PIIr. **wárca-* → FU **werćV* ‘shoot; hair’ > F, X

IE **mórto-* > pPIIr. **márta-* (?) → FP **mertä* (**mārtä*) ‘(hu)man’

IE **pónt-eh-* > (p)PIIr. **pántā-* → P **päntV* / X **pentV* ‘path’

Loanwords: vowel correlations

Central mid → mid front

PIIr. **járanya-* > PIr. **jaranya-* > CIr. **zaranya-* → Mo-Ma **serná* ‘gold’

PIIr. **grd^há-* > PIr. **gārda-* → **kertä* (?) > P **górt* ‘house’

Back/central → low front

pPIIr. **s(h)áytu-* → FP **säjtV* ‘bridge’

Mid > low

PIIr. **ćruw-/*ćrw-?* → FU **ćarwə* ‘horn’

pPIIr. **hāśura-* > P(I)Ir. **hāsura-* → FU **asora* (**asura/asəra?*) ‘lord’

PIIr. **tārás* > PIr. **taras* → FP **tarəs* ‘through’

PIIr. **járanya-* > PIr. **jaranya-* > CIr. **zaranya-* → **sarańV* ‘gold/copper’ > Ug

PIIr. **wrtká-* > PIr. **wərθka-* → Ma-P **wärkä* ‘kidney’

Loanwords: vowel correlations

Unknown → mid front

PIIr. **mákš-* ‘fly, bee’ → FU **mekšə* (**mākšə?*) ‘bee’

PIIr. **árd^há-* ‘side, half’ → FP **ertä*

Unknown → mid back

PIIr. **árya-* → FP **orja* (**ārja*) ‘slave’

PIIr. **warāj^há-* → F, Mo **woraćə* (**wāraćə*) ‘boar’

PIIr. **anćura-* → FU **ońćarə* ‘tusk’

PIIr. **maća(ka)-* ‘gnat’ > Plr. **matsa-* → FSa **mača* ‘worm, moth’

Conclusions: sounds

Correlation of U **o* (**ā*)/**a* vs. **e* (**ǣ*)/**ä* with PIE **o* vs. **e* > pPIIr. **æ* vs. **a* is not really striking (counterexamples)

U **o* \leftrightarrow pPIIr. **æ, a, ǣ, ā* with no strong correlation

U **e, ä* \leftrightarrow pPIIr. **æ* statistically dominant, but not very compelling due to overall frequency of PIE **e* > pPIIr. **æ*

U **a* expected in any case

So do U front/back mid vowels really reflect front/back (p)PIIr./PIr. mid vowels and thus an early date (or a special dialect)?

Depending on phonetics of Uralic vowel reconstruction, still not clear enough

Conclusions: sounds

IIr. developments reflected in Uralic loans:

?(p)PIIr. **l* > PIIr. **r*

?pPIIr. **e/o* > pPIIr. **ä/a* > PIIr. **a*

pPIIr. **ǣ* > PIIr. **a*

pPIIr. = PIIr. **ć* > Plr. **c* > Clr. **s*

PIIr. **k*, **k̑* > Plr. **ć*

PPIr. **ǫ* > Plr. **a*

Not reflected in early loans: Plr. **s* > Clr. *h*

Conclusions: strata of substitutions

	*ć	*ķ	*ā<*ā	*ā<*ǣ	*a<*ǣ	*a<*a	*a<*ə	*ə/ŕ	*s	*h
pPIIr.	ć	k	o	o?	e,ä	o	ę	ę	s	k
PIIr.	ć	k	o	o?	e,ä	o	ę,a?	ę	s	k?,ş?
PIr.	č	?			o,ä		a	ę,e,u?	s	--
CIr.	s	ć			ä			i,e,ä	s?	--
Sm	ć?		o		ǣ,a			ə<u?		
PU?	ć		o,a		a,o					k?
PFU	ć	k		o	e,ä,a	o	ę		s	k,ş?
PFP	ć,č	k,ć		o,e,a,ä	e		ę,e			--
PWU	ć,č,ks?,s				a/ę					--
PUg	ć,č,s				ä,a			a	s	--



Thank you!

Kiitos!

Tack!

धन्यवादः